

WHAT IS CLAIMED IS:

1. A method of fabricating a semiconductor device, said method comprising the steps of:

- forming a hydrogen-containing layer at a predetermined depth in a single
5 crystal semiconductor substrate having a main surface of a {110} plane;
- bonding the single crystal semiconductor substrate and a supporting substrate to each other;
- separating the single crystal semiconductor substrate by a first heat treatment along the hydrogen-containing layer;
- 10 carrying out a second heat treatment at a temperature of 900 to 1200°C;
- polishing a single crystal semiconductor layer remaining on the supporting substrate and having a main surface of a {110} plane; and
- forming a plurality of TFTs each having an active layer of the single crystal semiconductor layer.

15 2. A method of fabricating a semiconductor device, said method comprising the steps of:

- forming a porous semiconductor layer by anodic oxidation of a single crystal semiconductor substrate having a main surface of a {110} plane;
- carrying out a first heat treatment to the porous semiconductor layer in a
20 reducing atmosphere;
- carrying out an epitaxial growth of a single crystal semiconductor layer having a main surface of a {110} plane on the porous semiconductor layer;
- bonding the single crystal semiconductor substrate and a supporting substrate to each other;
- 25 carrying out a second heat treatment at a temperature of 900 to 1200°C;
- polishing the single crystal semiconductor substrate until the porous

semiconductor layer is exposed;

removing the porous semiconductor layer to expose the single crystal semiconductor layer; and

forming a plurality of TFTs each having an active layer of the single crystal semiconductor layer on the supporting substrate.

3. A method of fabricating a semiconductor device, said method comprising the steps of:

forming an oxygen-containing layer at a predetermined depth in a single crystal semiconductor substrate having a main surface of a {110} plane;

10 converting the oxygen-containing layer into a buried insulating layer by a heat treatment; and

forming a plurality of TFTs each having an active layer of a single crystal semiconductor layer having a main surface of a {110} plane on the buried insulating layer.

15 4. A method according to claim 1, wherein the single crystal semiconductor layer is a single crystal silicon layer.

5. A method according to claim 1, wherein the semiconductor device is one selected from the group consisting of a liquid crystal display device, an EL display device, an EC display device, and a photoelectric conversion device.

20 6. A method according to claim 1, wherein the semiconductor device is one selected from the group consisting of a video camera, a digital camera, a projector, a projection TV, a goggle type display, a car navigation system, a personal computer, and a portable information terminal.

7. A method according to claim 2, wherein the single crystal semiconductor layer is a single crystal silicon layer.

8. A method according to claim 3, wherein the single crystal semiconductor layer is a single crystal silicon layer.

5 9. A method according to claim 2, wherein the semiconductor device is one selected from the group consisting of a liquid crystal display device, an EL display device, an EC display device, and a photoelectric conversion device.

10 10. A method according to claim 3, wherein the semiconductor device is one selected from the group consisting of a liquid crystal display device, an EL display device, an EC display device, and a photoelectric conversion device.

11. A method according to claim 2, wherein the semiconductor device is one selected from the group consisting of a video camera, a digital camera, a projector, a projection TV, a goggle type display, a car navigation system, a personal computer, and a portable information terminal.

15 12. A method according to claim 3, wherein the semiconductor device is one selected from the group consisting of a video camera, a digital camera, a projector, a projection TV, a goggle type display, a car navigation system, a personal computer, and a portable information terminal.